Immigrant women's health: screening and immunization

This article is the second in a series of 5 articles exploring immigrant women's health. These articles are adapted from the book *Immigrant Women's Health,* published by Jossey-Bass, San Francisco, 1999.

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SCREENING PROTOCOLS

Any screening protocol for immigrants must be based on risk and epidemiologic factors for that high-risk group. With the exception of a recommendation that immigrants be screened for tuberculosis (TB), the US Preventive Services Task Force guidelines say little about screening immigrant women.[1] Guidelines for screening immigrant women tend to be drawn from infectious disease profiles of local and state public health agencies and the Centers for Disease Control and Prevention (CDC). The protocols presented in this article are those of the San Francisco General Hospital (SFGH) Medical Center Refugee Clinic. In addition, studies done in other countries inform us about the prevalence of certain conditions in those populations (such as iron deficiency anemia). Screening recommendations that do not apply to the general population (such as screening for anemia), nevertheless, could be appropriate in high-risk groups, including immigrant women.

Anemia screening

Every female patient at SFGH Refugee Clinic receives a complete blood cell count because anemia is a common condition in immigrant women.[2] Usually it is a hypochromic, microcytic type of anemia. Anemia may result from dietary iron deficiency or parasitic infestation that contributes to microscopic blood loss in the stool. It is difficult to distinguish this form of anemia from thalassemia, which is common in certain ethnic groups (Mediterranean, Asian). Women and girls older than 12 years who have an initial hemoglobin level below 100 g/L (<10 g/dL) and a hematocrit of less than 0.33 (<33%) should have further evaluation, either by treatment with iron and a reevaluation or by ascertainment of the cause of anemia.

A conservative initial approach to treating anemia is to educate the patient about an iron-rich diet and to initiate a regimen of an oral iron preparation twice a day. The goal is to provide 3 mg/kg of body weight of elemental iron divided into 2 daily doses for 6 to 8 weeks. Any abnormalities identified on stool ova and parasite preparation should be treated at the same time. The complete blood cell count is then rechecked in 6 weeks. If the hemoglobin level and hematocrit have returned to normal, no further evaluation is performed. If they remain low, the provider should exclude continuing blood loss (obtaining stool specimens for ova and parasites and occult blood and reviewing menstruation history) and consider testing serum iron, total iron-binding capacity, serum ferritin, and lead levels. Hemoglobin electrophoresis generally is reserved for children and pregnant women. Other nutritional deficiencies may also cause anemia.

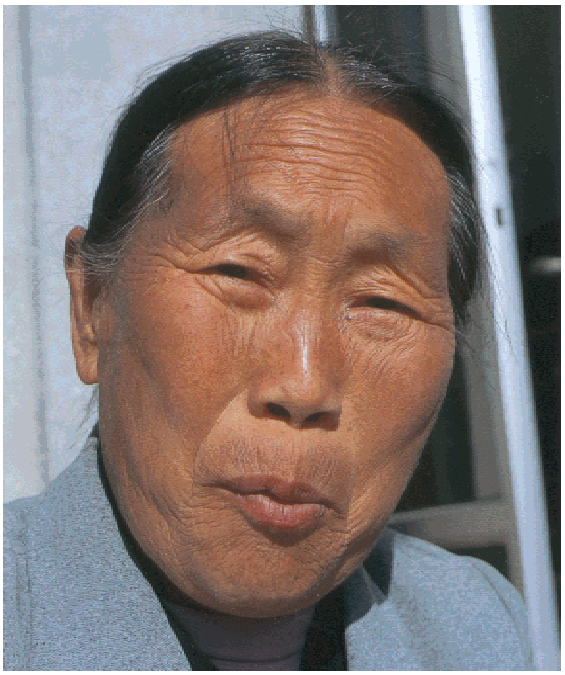
Summary points

- Screening of immigrants must be based on risk and epidemiologic factors for that high-risk group
- Anemia is common in immigrant women—usually a result of dietary iron deficiency or parasitic infestation
- Tuberculosis is a continuing infection risk throughout the world and of increasing importance among immigrants to the United States
- A key part of the initial assessment of any immigrant patient is to ascertain immunization history and provide missing immunization for vaccine-preventable diseases

TB screening and prophylaxis

TB is both an old and an emerging infection risk throughout the world. (See figure showing rates of reported TB in foreign-born persons living in the United States linked to this article on our web site.) Old patterns of disease have changed with the development of multiple-drug-resistant strains of *Mycobacterium* species. Countries that had lower rates in the past (for example, former Soviet Union countries) may have higher rates now because of less available medication. In addition, the percentage of TB cases that occur among foreign-born residents of the United States (compared with native-born) increased from 22% of the national total in 1986 to 39% of the national total of cases in 1997.[3] Infection with the human immunodeficiency virus (HIV) adds a significant comorbidity that makes the treatment of TB more complex.

It is important, therefore, that all newcomers be screened for TB using a purified protein-derivative (PPD). The health care provider should ask whether the patient has received BCG (bacille Calmette-Guérin), a vaccine frequently used in other countries to prevent serious forms of TB; screening should be done regardless of BCG status, however. This includes those with class B TB (a positive PPD reaction with evidence of past but not active disease on chest radiograph) listed on screening forms that arrive with recent immigrants and refugees. The only exclusions should be patients with a record of a positive PPD reaction and those currently receiving TB medications. The appearance of 10 mm or more of induration within 48 to 72



Sean Sprague/Panos Pictures

All newcomers to the US should be offered screening for anemia and TB

hours after subcutaneous administration of PPD indicates a positive reaction in high-risk groups. The skin reaction should be read by a trained health care worker whenever possible. In recent contacts of persons known to have active TB, 5 mm of induration is considered positive.[4] Boosting an immune response to PPD by repeating the test 2 weeks later might be considered in patients whose test is negative but for whom there is a high index of suspicion, such as elderly persons.

Although previous BCG administration can make the interpretation of the PPD test more complex, the CDC recommended in 1979 that it be interpreted as positive based on the size of induration, regardless of the patient's BCG vaccine status.[5] Although BCG vaccination confers a variable degree of skin test positivity that wanes with time, its effectiveness varies in different settings, and current recommendations are to treat positive PPD skin tests as positive reactions even if there is a history of BCG vaccination. Persons with positive reactions but no active disease should be considered candidates for prophylaxis.[6] HIV infection, diabetes mellitus, other chronic medical conditions, and the use of immunocompromising or suppressive medications (including steroids) exacerbate TB risk.

Most legal migrants will bring overseas chest radiographs with them; those films should be sent for formal reading by a radiologist if any active disease is suspected. If radiographs are of poor technical quality, new ones should be taken, with appropriate use of protective lead aprons. If an adult patient does not have a chest radiograph and is PPD-positive (>5 mm for those persons adjusting their immigration status),[3] a single posteroanterior view radiograph of the chest should be taken, with additional views (lateral, apical, or lordotic) obtained as indicated. If the chest radiograph shows abnormalities, a sputum specimen should be obtained. Many immigrants return home regularly to their country of origin. Primary care practitioners may wish to do more frequent TB screening in persons who travel back and forth to countries where TB is prevalent.

In general, isoniazid remains the standard of prophylaxis for inactive disease, although practice varies when prophylaxis is being administered to patients from areas where multiple-drug-resistant TB is prevalent. Clinicians should be aware that drug-resistance rates are higher among immigrants, particularly those from Vietnam, the Philippines, and Mexico.[3] Recent immigrants (within the past 5 years) with 10 mm or more of induration on PPD screening should be considered positive and, therefore, candidates for a 6- to 9-month course of isoniazid chemoprophylaxis. Patients who are HIV-positive and those with chest radiograph abnormalities suggestive of previous TB should be considered positive at 5 mm of induration and should receive isoniazid therapy for 9 months (although SFGH protocols now include options for shorter regimens when combination therapy is prescribed). Preventive therapy generally consists of isoniazid (10 mg/kg for children, to a maximum dose of 300 mg per day for children and adults) given either daily or twice a week (for directly observed therapy) for 6 to 9 months. When therapy is directly observed, isoniazid can be given twice a week in a dose for adults of 15 mg/kg (up to 900 mg).[7]

A recent comprehensive statement on the treatment of

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Women from the Philippines have increased rates of drug-resistant TB

latent TB has been issued by the American Thoracic Society and the CDC also discusses alternative regimens.[7] This document highlights the importance of providing extended hours, counseling and education (with appropriate translation), and regular visits for either directly observed therapy or reinforcement of the treatment regimen to enhance treatment adherence. At SFGH's Refugee Clinic, eligible patients are referred for baseline laboratory assessment before treatment begins (see box). Treatment and monitoring at SFGH are coordinated with the clinic responsible for monitoring TB treatment according to a determined protocol (see box). Practitioners should be aware that elderly patients may experience an adverse reaction to INH.

Laboratory monitoring protocol for treatment of latent tuberculosis

Baseline liver function tests (aspartate aminotransferase, alkaline phosphatase, and total bilirubin values) for individuals with:

- Known liver disease
- Alcoholism
- Injection drug use
- HIV infection
- Any multidrug therapy (isoniazid-rifampin for 4 months; rifampin-pyrazinamide for 2 months)

Baseline and monthly complete blood cell count, creatinine level, and uric acid concentrations are required for patients following a 2-month regimen of rifampin-pyrazinamide.

If baseline results are abnormal, repeat measurements monthly until documented as stable or if the patient has an adverse reaction

Courtesy of San Francisco General Hospital, TB and Refugee Clinics, 2001

IMMUNIZATION FOR ADULTS

A key part of the initial assessment of any immigrant patient is to ascertain the immunization history and provide missing vaccination for vaccine-preventable diseases. Many patients will not have received a complete primary series by US standards. The recommended series of primary vaccinations was revised in 2001 to include pneumococcal vaccine for children. The currently recommended US primary series appears in table 1.[8] Adults who have not had the complete series should receive indicated vaccines.[9] As noted in table 2, this would include adult tetanus-diphtheria vaccine (0.5 mL intramuscularly) if none has been received in the past 10 years, or 2 doses of vaccine given 6 months apart, if tetanus vaccine has never been given.

If the tetanus immunization history at the time of an injury to the skin reveals that a patient has never been or has been inadequately immunized (<3 doses of vaccine), tetanus immune globulin (TIG), 250 mg intramuscularly, may also be administered. The decision to use TIG should be predicated on whether there is a high likelihood of contamination of the wound (bites, soil contamination, puncture wounds, burns, or crush injuries). Tetanus immune globulin provides passive immunity only, affording protection against tetanus for the immediate event. Inadequately immunized patients should receive tetanus-diphtheria, 0.5 mL intramuscularly, in addition to TIG to trigger active immunity. Patients should then receive a tetanus booster within 6 months.

Measles, mumps, and rubella (MMR) vaccine should

Table 1 *Recommended primary immunization schedule in the United States, 2001**

Disease	Birth	1 mo	2 mo	4 mo	6 mo	12 mo	15 mo	18 mo	4–6 yr	11–12 yr	14–16 yr
Hepatitis B	Hep B #1	Hep B #2 (1 mo later)			Hep B #3					Hep B (if not completed)	
Diphtheria, tetanus, pertussis			DTaP or DTP	DTaP or DTP	DTaP or DTP		DtaP or DTP		DTaP or DTP	Td every 10 yr	
Haemophilus influenzae type b			Hib	Hib	Hib	Hib					
Poliovirus			IPV	IPV			IPV	IPV			
Pneumococcal conjugate			PCV	PCV	PCV	PCV					
Measles, mumps, rubella						MMR			MMR	Or MMR	
Varicella						Varicella				Varicella (if not given)	

DtaP = diphtheria, tetanus, acellular pertussis toxoids; DTP = diphtheria, tetanus, pertussis toxoids (pediatric); Td = tetanus and diphtheria toxoid (adult); IPV = injectable polio vaccine.
*Vaccines are listed at routinely recommended ages. Catch-up immunization should be done during any visit, if feasible. Hepatitis B, MMR, and varicella immunization status should be reassessed at adolescent visit and at initial assessment. IPV is recommended for persons younger than 18 years for primary poliovirus immunization. Hepatitis A vaccination may be recommended in selected areas. Pneumococcal vaccine is also recommended for persons older than 65 years and those in high-risk groups (from the Advisory Committee on Immunization Practices and the American Academy of Family Practice[8]; www.aafp.org/exam/rep-520.html).

be given to all persons born after 1956, especially adolescents, women who are not currently pregnant who have negative rubella titers, day-care providers, and health care workers. Rubella vaccine is not commonly given in the countries that constitute the former Soviet Union. Recent immigrants from that region born after 1957 should receive MMR immunization if it is not contraindicated.[11] MMR vaccination is contraindicated in pregnant women. Hepatitis B vaccination should be considered for all adolescents who were not previously immunized and whose serologic tests are negative for hepatitis B surface antigen, the marker of a chronic carrier, and adults with exposure risks: household members or partners who are infected with hepatitis B, bisexual and gay men, heterosexual patients with multiple sex partners, and health care workers.

Pneumococcal vaccination should be given to patients older than 65 years and to those with risk factors such as asthma, chronic obstructive pulmonary disease, asplenia, cardiac disease, and renal disease. Influenza vaccination should be given annually to patients older than 65 years and those with chronic cardiac, respiratory, renal, or metabolic diseases.[8]

In addition to pneumococcal vaccination, all patients with asplenia (whether functional or surgical) should receive meningococcal vaccine, Haemophilus influenzae (Hib) vaccine, and annual influenza vaccination. Persons infected with HIV should receive injectable polio vaccine instead of oral polio vaccine if polio vaccine is indicated and MMR (even though live vaccines are generally not given to other immunocompromised persons), tetanus-diphtheria, pneumococcal, influenza, Hib, and hepatitis B vaccines. Household members of HIV-positive persons and other immunocompromised patients should not receive oral polio vaccine.[12,13] Typhoid vaccine may be considered in household contacts of *Salmonella typhi* carriers.

In rare cases, BCG vaccine is used to prevent the spread of TB.[5] Generally this would be done if a child was exposed to an infected household member who cannot or will not adhere to treatment or a child who cannot receive long-term primary preventive therapy. Any use of this vaccine should be in consultation with local TB control experts.

CONCLUSION

Clinicians, particularly those assuming the role of primary care provider, who care for immigrant women are responsible for evaluating the immunization status of their pa tients. In addition, physicians are key participants in TB control in the United States. Familiarity with current immunization and TB screening protocols requires annual attention to practice guidelines in these important areas. Physicians who see many immigrant patients may wish to place immunization schedules in the front of the medical records at the first visit (or use an electronic recording system) so that staff and physicians are reminded to continue updating immunizations during later visits, as indicated.

Screening and prophylaxis for TB is a critical link in decreasing its prevalence among family members as well. Health care professionals should be aware of the potential for a perception of stigma when TB is diagnosed or chemoprophylaxis is recommended. Phrasing such care as important for the health of all family members may make this type of treatment more acceptable and possibly enhance adherence.

Table 2 *Recommended adult immunization schedule United States, 2001**

Disease	11–12 yr	14–18 yr	Adults 18–64 yr	≥65 yr
Hepatitis B†	If not given in the past			
Tetanus/diphtheria	Every 10 yr			
Streptococcus pneumoniae	High-risk groups			Once
Poliomyelitis				
Measles, mumps, rubella†,‡	Assess MMR status and give if not immune			
Influenza (type b)	Annually for all high-risk groups and those aged ≥65 yr			

*Vaccines are listed as routinely recommended. Catch-up immunization should be done during any visit, if feasible. High-risk groups include patients who have asplenia, sickle cell disease, chronic lung and cardiac conditions, or impaired immunity (from American Academy of Family Practice, www.aafp.org/exam/table2.html).[10]
†Immunization status should be assessed at time of initial assessment and provided if indicated.
‡Contraindicated during pregnancy.

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